

PROJECT USE POWER

With respect to electric service for project requirements, the Service will continue to administer and provide power under those electric service arrangements now in effect. Western shall be consulted during the development of future water contracts which involve electric service and shall concur with such contracts before they are executed. Modifications or revisions of existing contracts which involve changes in electric services shall be subject to review and concurrence by Western before execution. Rates for such services shall be established by Service. Cost data for transmission service shall be provided by Western. To the extent the Service's power rates are subject to revision, such rates from any project shall be revised by the Service at the same time that Western effects an adjustment in rates to its customers for power from the project.

The Service shall keep Western advised of any future projected project requirements which will require withdrawal of power under contract to preference customers. To the extent that adequate notice is provided, Western shall provide for such withdrawal in its marketing plans. In the event project requirements develop for which withdrawal has not been provided, Western shall use its best efforts to secure for the Service, at cost to the Service, the required power supply in the most economic fashion until such time as withdrawal can be effected. In order that Western may properly reflect project requirements in its operations, the Service shall also provide Western with operational data and forecasts.

Western will provide all transmission service and associated facilities. To the extent that power for project use requirements is not reserved by Service from future multipurpose Service projects, it is the intent that Western will provide the power supply and administer all electric service arrangements.

POWER SYSTEM OPERATIONS

1. General

The Service and Western will strive to maintain high standards associated with system operations and reliability and comply with the criteria and procedures of the applicable pooling agreements and national electric reliability councils. To this end, the following general operating policies shall apply.

2. Policies

a. Western is responsible for all power system dispatching functions.

b. The Service and Western shall each have operational control of its facilities, except as otherwise agreed. However, the Service and Western will mutually determine the safest and most reasonable point of demarcation of operating jurisdiction over switching and clearances on an Area/Region basis.

c. Annual operating plans and water release schedules are the responsibility of the Service. But, inasmuch as these plans impact Western's resources for meeting firm loads and reserve requirements, the Service will afford Western an opportunity to assess and comment on proposed plans and/or changes thereto. The Service will keep Western routinely informed of the current water operating plan and associated water release and operational parameters. Western will keep the Service informed of power system constraints and marketing plans that affect water operating plans.

d. Western is responsible for power and energy purchases. Western will consult with the Service in estimating the amount and probability of hydro energy that may be produced by water releases. This data will be used in estimating energy purchase requirements for firm power obligations.

e. All power systems are obligated to supply generation capacity to meet their loads moment by moment as required by industry standards. System load control function is achieved by load-frequency control equipment measuring the net flow in and out of the system at the control boundaries and then automatically adjusting generation levels within the control area to keep the net boundary power flow as close to the net scheduled quantity as possible while also attempting to maintain 60 Hz and correct time. This function is called automatic generation control (AGC).

Western is responsible for the AGC function for the Federal power system within water and equipment constraints. The Service shall make available to Western generating capacity to meet the AGC obligation. The Service is responsible for selecting units for control, and setting the limits of operation of the units. The Service and Western will cooperate in developing equipment configurations for the satisfaction of these basic responsibilities.

f. The Service will develop with Western, annual schedules for maintenance of generators and associated facilities that affect generation. Water release requirements, maintenance requirements, and power system generation requirements (including maintenance schedules for customer generators) will be fully considered in developing the final maintenance schedules. Western will coordinate any outage schedules where required with other area utilities. Every effort will be made to arrive at mutually acceptable maintenance schedules. Such schedules will be subject to change by mutual agreement to meet changing system requirements. The Service will coordinate with Western on all changes and delays to the maintenance schedules and notify Western promptly of emergency maintenance.

g. The Service will cooperate with Western to maintain adequate operating reserves by maximizing generating unit availability (minimum down time) within the constraints of safe and reliable unit operation, available manpower and required maintenance. Moreover, the Service will inform Western as soon as possible about forced outages in order that alternate sources of reserves may be arranged.

h. Where practical, the Service and Western will cooperate to optimize the operation of project loads by maximizing the use of off-peak periods for pumping and other means that contribute to reduced cost for satisfying project loads.

i. The Service and Western will cooperate in optimizing reserve generating capacity for system operation. In this regard, the Service will cooperate in qualifying project pumping loads, when feasible and appropriate, for interruptible load for use as spinning reserve capacity in accordance with reserve pooling requirements.

j. The Service and Western will coordinate with regard to generator loading criteria. Generally, the Service will define loading constraints in accordance with machine designs. However, the Service will endeavor to provide the maximum flexibility in those loading schedules, particularly in times of power system emergencies when operation outside normal constraints may be required to maintain system integrity or to restore electrical service.

k. The Service and Western will cooperate in controlling system voltage. The Service will regulate machine voltages within machine and plant equipment voltage constraints so as to provide those bus voltages and/or var flows requested by Western in executing its responsibility for maintaining power system reliability and integrity.

l. Load shedding is commonly practiced by members of the national reliability councils to provide relief to system facilities, to improve operating conditions both during and following major disturbances, and to minimize the amount of and time that customer load might otherwise be interrupted. Western will be responsible for coordinating load shedding programs with area pools and the reliability councils. The Service will cooperate with Western in developing load shedding programs which involve project facilities.

3/26/80

m. Power system stability problems often may most effectively be solved by the addition of supplemental controls for generators. The Service and Western will cooperatively determine the need for and will cooperatively implement these measures.

n. The Service and Western have extensive needs for communication related to the control and monitoring of interconnected equipment. This includes the need for continuous exchange of data by electronic analog and digital means. Satisfaction of these needs in the most efficient and least costly manner requires that the Service and Western work cooperatively to explore means of sharing communications, control equipment and facilities.

o. The Service and Western will cooperatively develop policies for communication between powerplant operators and/or control centers and dispatchers that will simplify and expedite communications wherever practical.

p. Changes in power systems often dictate the need for changes in equipment ratings and characteristics. The requirement for increased circuit breaker interrupter rating due to system growth is an example of this. The Service and Western shall cooperatively determine the need for these changes and program for replacement equipment to satisfy these needs.

q. The Service will make generating units available for condensing operation, when units are equipped for this service, as requested by Western for the purpose of voltage support or to provide additional rotating inertia to the system. When condensing units, the water will be depressed from the turbine, where possible, to minimize water and energy loss. If condensing units are needed for creditable spinning reserves as determined by Western, the Service when practical will provide controls necessary to make condensing units responsive to system frequency decay.

r. Western will prudently define permissible closing phase angles throughout its power system with due consideration given to the proximity of rotating machines, system impedances, and the urgency of closure of the system segment. Western will permit the Service to review and comment on the proposed closing angles and will make every effort to arrive at mutually acceptable angles.

s. While application of generator dropping should not be used as a substitute for designing an adequate and reliable transmission system, power system conditions may warrant the use of this option. The Service will cooperate with Western in implementing generator dropping schemes as mutually agreed to enhance power system stability or the power transfer capabilities of transmission system elements.

t. Western is responsible for performing transmission system computer model studies including power and reactive flows, system stability, and fault currents. Western will provide the results of these studies to the Service upon request or perform special transmission system studies when requested.

u. Western shall have engineering control for specifying protective relay settings associated with the transmission grid. The Service shall have engineering control for specifying protective relay settings for plants and other Service controlled equipment. The Service and Western shall coordinate protective relay application, specifying relay settings and maintenance standards to assure optimum power system reliability and protection of power system equipment.

v. There are a number of requirements, such as system operations and reserve pools, for established uniform standards and testing procedures for determining the generating capacity ratings. Western will provide input to the Service in establishing the standards and testing procedures. The Service will perform the tests and establish the generator ratings to be used in determining the generating capacity. Capacity values will be determined by the Service with consultation from Western.

w. The Service and Western will cooperate to maintain coordinated and consistent switching, clearance, and safety procedures.

x. Each Region/Area shall continue to jointly develop and mutually agree on detailed operating procedures covering all operational aspects between the two organizations. These agreements will include system operations, relay coordination, access to facilities, sharing of tools and equipment, communications equipment, cost assignment and sharing, and other operating details.

y. Western shall have the principal responsibility for administration and operation of the Electric Power Training Center to provide for the power operator training needs of Western and the Service. Service shall have the responsibility for developing the basic requirements for curriculum and classes for Service powerplant operator training and certification. Service will also provide some special lectures and material for this and other training. Western shall have the responsibility for developing curricula and classes for the balance of the training.

This joint program shall be coordinated by cooperative actions of each agency. Training performed by Western for the Service shall be scheduled and accomplished with the same priority as other Western training.

(1) Service shall reimburse Western for work performed on a cost basis, and funds shall be transferred by SF-1081.

(2) Service shall provide annually, in advance, an estimate of the amount of work anticipated.

3/26/80

2. Ownership of metering equipment used to measure the electric power and energy to be made available to either agency hereunder will be as mutually agreed by the responsible Region/Area. Metering equipment shall be maintained and tested in accordance with good utility practice. Should any meter fail to register, the electric power and energy delivered during such period of failure shall be estimated from the best information available.

3/26/80

LOWER COLORADO REGION
BOULDER CITY AREA

JOINT OPERATING AGREEMENT

February 8, 1980

2/8/80

Scope

This agreement is made pursuant to the joint memorandum between Water and Power Resources Service (Service) and Western Area Power Administration (Western) dated January 22, 1980.

This agreement pertains to power system operation and maintenance activities of either agency which has impact on the other, in the categories of System Operations, Safe Clearance Procedures, Relay Coordination, Access to Facilities, Sharing of Tools and Equipment, Communications Equipment, Cost Assignment and Sharing, and Miscellaneous Operating Details.

General

The joint memorandum from Service's Regional Director and Western's Area Manager of February 1, 1980, formally established the transfer of property from Service to Western. In general, Service retains ownership of all powerplants. Ownership of switchyards, transmission lines and substations is transferred to Western, with the exception of the transmission system for the Central Arizona Project power supply, the switchyards and associated facilities at Hoover Dam, and the generator breaker bay equipment at Davis and Parker Dams. Transfer of Hoover switchyards to Western will be effected May 31, 1987, pursuant to November 26, 1979 guidelines.

Service and Western have been cooperating on operations and maintenance activities relating to Hoover Dam, Davis Dam, Parker Dam and related facilities since October 1977. Operations which have evolved through this cooperation are generally satisfactory. Therefore, this written agreement is intended to describe and formalize present operations. Specific procedures will be attached as appendices as they are developed, and as such, form a part of the agreement.

The agreement and appendices may be revised by mutual consent whenever new or special conditions require a modification or addition. In addition, the agreement and appendices will be reviewed annually by both agencies as a routine procedure, and may be modified by mutual consent. Changes to the agreement and the appendices will be effected through Service's Regional Office and Western's Area Office.

System Operations

In part, Service has responsibility for operation and maintenance of dams, powerplants, and appurtenances except for equipment transferred to Western. In part, Western has responsibility for operation and maintenance of switchyards, substations and transmission lines, except for equipment retained by Service. Service will adhere to Western's generation schedules and cooperate with Western in operations and maintenance of Federal power facilities, unless prevented by uncontrollable forces as defined in Appendix A, hereinafter referred to as Uncontrollable Forces. Western will adhere to Service's water release schedules and cooperate with Service in Operations and maintenance of Federal power facilities, unless prevented by Uncontrollable Forces. Specific instructions and procedures to be used in the execution of routine and emergency operations will be jointly developed by December 1980, and appended to this agreement as Appendix B, referred to as PSD Bulletin 303.

2/8/80

8. Breaker operation counter data
9. Outage requests
10. Switching programs
11. Names of Service personnel qualified to issue clearances, receive clearances, and do switching.
12. Standard station operating procedures

Service will strive to comply with other reasonable requests for pertinent information.

Western will provide the following specific information to Service:

1. Generation schedules
2. Major equipment outage schedules
3. PSD Bulletins
4. Weekly summary of System Operations
5. Outage requests
6. Switching programs
7. Formal list of Service/Western personnel qualified to issue clearances, receive clearances and do switching.

Western will strive to comply with other reasonable requests for pertinent information.

Safe Clearance Procedures

Due to the close proximity of equipment in switchyards and the intermingled ownership, operation, and maintenance agreements between Western and Service for this equipment, uniform clearance procedures will be utilized to eliminate errors and miscues.

Western and Service agree that Power O&M Bulletin No. 26, "Power System Clearance Procedure" and Power O&M Bulletin No. 5, "Personal Protective Grounding," will be strictly enforced to insure that safe clearance procedures are used by both Western and Service personnel. Both No. 26 and No. 5 will be revised and updated.

Outage requests which originate within one agency will be transmitted to the other agency as soon as requirements are known, but normally not less than three working days in advance of desired action. Switching programs which affect the power station only will normally be written by Service personnel. Switching programs which involve transmission lines or system interconnections will normally be written by Western personnel. This arrangement may be modified by special agreement, and will be specifically covered by Appendix B, PSD Bulletin No. 303.

Western will maintain lists of qualified personnel for issuing and receiving clearances and performing switching, in accordance with PSD Bulletin No. 504, which will be appended to this agreement as Appendix F. Service will furnish names of qualified personnel for inclusion in lists.

2/8/80

Other Operation Details

Helicopter fuel, landing facilities, and repair and maintenance service will be in accordance with Appendix I.

Phase angle limits for closing transmission lines to the bus at Parker and Davis Switchyards will be in accordance with Appendix J.

Water and Power Scheduling Procedures for Remote Operation of Davis and Parker Powerplants will be in accordance with Appendix K.

4/1/82

APPENDIX INDEX

<u>Appendix</u>	<u>Title</u>
A	Uncontrollable Forces
B (PSD 303)	Specific Operating Instructions and Procedures for the Execution of Routine and Emergency Operations
C	Operating Limits and Guidelines for Parker and Davis Dams
D (PSD 506)	Substation and Switchyard Jurisdictions
E	Call Out Lists for Parker and Davis Dams
F (PSD 504)	Qualified Personnel for Issuing and Receiving Clearances and for Performing Switching
G	Joint Microwave Site and Frequency Use Agreements
H	Backcharge Cost Accounting
I	Helicopter Fuel and Land Facilities
J	Phase Angle Limits for Closing Transmission Lines to the Bus at Parker and Davis Dams
K	Water and Power Scheduling Procedures for Remote Operation of Davis and Parker Powerplants



United States Department of the Interior
WATER AND POWER RESOURCES SERVICE
BUREAU OF RECLAMATION
WASHINGTON, D.C. 20240

NOV 26 1979

IN REPLY
REFER TO: 100

Memorandum

To: Clifford I. Barrett and William H. Clagett, Task Force Chairmen

From: Commissioner, Water and Power Resources Service (Service)
Administrator, Western Area Power Administration (Western)

Subject: Transfer of Functions and Property as per Public Law 95-91

The purpose of this letter is to provide policy guidelines to the joint task force composed of three members from Service and three from Western who by this letter are directed to complete a recommended final determination order on the transfer of functions and property in accordance with Public Law 95-91 by February 15, 1980. The joint task force is also directed to prepare recommendations for conducting activities between our two agencies and memoranda of agreements as necessary keeping in mind agency responsibilities, public safety, economy of government, and management efficiency.

The joint task force shall comply with the following policy guidelines which are agreed to by the Commissioner and the Administrator:

1. Service has responsibility for all water release scheduling, and will retain operational control of all generator units. However, Service will provide opportunity for Western input to water release decisions and to the extent practicable provide to Western generator operative parameters so as to allow Western to optimize the utilization of the power resources.
2. Service agrees that all power dispatch functions and associated property should transfer to Western.
3. Western should have operational control of those transmission lines, switchyard equipment, and substations which form an integral part of its high-voltage transmission system. Ownership, control methods, and maintenance of switchyards should be arranged on a case-by-case basis. As a minimum, Service should own and control the generator circuit breakers and step-up transformers at all powerplants, and Western should own and control the line circuit breakers.

4. Service agrees that Western should provide transmission, switching, and substation service for Service projects for all power, including project power except at isolated stations and in special circumstances as agreed to by both parties. Western will deliver project power as required by Service.

5. Western and Service agree that Service should retain ownership of the CAP transmission lines and the Navajo power entitlement. Service agrees to transfer to Western the responsibility for control, operation and maintenance of the lines, and managing the power entitlement. Service will give written assurance that these units will remain in Federal ownership and control and not be transferred to any other entity in the future. Western will provide pumping power for project pumps as required by Service.

6. Although it is recognized that there are a certain number of personnel associated with the functions and property in question, the task force should not address the transfer of personnel in their report.